UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,269	01/29/2007	Knut Behnke	N81812LPK	6652

1333 7590 09/01/2009

EASTMAN KODAK COMPANY
PATENT LEGAL STAFF
343 STATE STREET
ROCHESTER, NY 14650-2201

EXAMINER	
DOTE, JANIS L	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
09/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,269	BEHNKE ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/12/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The examiner crossed-out Japanese patent document JP57109570 listed on the form PTO-1449 filed in the Information Disclosure Statement on May 12, 2006, because applicants did not provide a copy of the document. Rather, applicants provided an English-language abstract describing JP57109570. The examiner has considered the abstract and has properly listed the abstract on the form PTO-1449 under the heading "Other Art."

2. The references cited in the Search Report issued on Feb. 15, 2005, have been considered.

3. The disclosure is objected to because of the following informalities:

The instant specification at page 4, lines 15-17, states that the "transition of the toner from a solid to liquid state should preferably occur in a temperature range or a temperature window of about 30°K to 50°K. This region should lie above 60°C, preferably between 70°C and 130°C . . ." (emphasis added). It is not clear how the toner transition temperature reported in degrees Celsius, e.g., about 60°C, i.e., about -213°K (60-273), varies within the disclosed temperature range reported in degrees Kelvin.

Appropriate correction is required.

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 4, the recitation "in a temperature range of about 50°C or smaller" lacks antecedent basis in the specification. See page 4, lines 15-17, of the specification, which states that the transition of the toner from the solid to liquid state should preferably occur in a temperature range or a temperature window of about 30°K to 50°K." The temperature range of "about 50°C or smaller" recited in instant claim 4 is outside the range disclosed in the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point

out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 and claims dependent on claim 3 are indefinite in the phrase "the ratio of the modulus of elasticity G' at the reference temperature . . . is $< 10^{-5}$, preferably $< 10^{-7}$" (emphasis added) for lack of unambiguous antecedent basis in claim 1, from which claim 3 depends. Claim 1 does not recite a reference temperature. It is not clear to what the reference temperature refers.

Claim 3 and claims dependent on claim 3 are further indefinite because claim 3 recites the broad G' ratio range of $< 10^{-5}$, and also the narrower G' ratio range of $< 10^{-7}$. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), where broad language was followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely

exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

Claim 4 is indefinite in the phrase "the transition of the toner from the solid to the liquid state occurs in a temperature range of about 50°C or smaller." Claim 5, which depends from claim 4, recites that the mentioned temperature range of the state change of the toner extends above 60°C . . .". However, claim 6, which depends from claim 5, recites that "the prefixing temperature is chosen in a temperature range of about 90°C to 100°C." Claim 6 uses the same language in defining the prefixing temperature that is used to define the toner transition in claim 4. Thus, it is not clear to what the temperature range in claim 4 refers, e.g., a temperature at which the solid toner turns into a liquid or a temperature interval from an initial temperature from which the solid toner starts to melt to a temperature at which the toner is a liquid.

Claim 5 is indefinite in the phrase "the mentioned temperature range of the state change of the toner extends above 60°C, preferably in the range of about 75°C to about 125°C" (emphasis added). Claim 5 recites both the broad temperature

range of "above of 60°C" and the narrower range of "about 75°C to about 125°C." The claim is indefinite because it is not clear whether the narrower range is merely exemplary of the broader range, and therefore not required, or a required feature of the claims. It is not clear what are metes and bounds of the patent protection desired.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,799,236 (Paczkowski) combined with US 2002/0088799 A1 (Behnke).

Paczkowski discloses a method for fusing toner images applied to both sides of a substrate. The method comprises the steps of: (1) transferring a first marking particle image (also known in the toner art as a toner image) to one side of a receiving member; (2) prefusing the first marking particle image to said substrate; (3) transferring a second marking particle image to the other side of the receiving member; and (4) permanently fusing both the first marking particle image and second marking particle image to the receiving member. Col. 4, lines 20-34 and 59-67. According to Paczkowski, the prefusing step provides heat "sufficient to at least partially melt the marking particles so that the particles become tackified so as to adhere to the receiver member on the first side thereof." Col. 4, lines 38-41. Thus, the marking particles prefusing temperature appears to be lower than the marking particles permanent fusing temperature. The prefusing temperature meets the limitations of the prefixing temperature recited in instant claims 1 and 2.

Paczkowski does not disclose that the prefusing step and the permanent fusing step use microwaves as recited in instant

claim 1. Nor does Paczkowski disclose that the marking particles have the toner thermal properties recited in instant claims 3-5.

However, Paczkowski does not limit the type of prefuser device or permanent fixing device. See reference claims 1 and 11. Paczkowski further teaches that the prefuser device may be a non-contact prefuser device. See reference claims 2 and 11.

According to Behnke, the use of microwaves for fixing toner images onto printed material is known. Paragraph 0003. Behnke discloses the problems of fixing toner images with conventional microwave devices and using traditional toners, such as incomplete toner melting, bubble formation in the toner images, or insufficient adhesion of the toner onto the printed material, e.g., "the bond with the printed material is not created sufficiently by the viscosity of the melted toner, which is too high." Paragraph 0006. Behnke further teaches that problems can occur especially when a printed material is printed on both sides in two subsequently performed printing operations. Paragraph 0006. However, Behnke teaches that non-contact fixing is desirable over contact fixing with heated rollers. According to Behnke, the advantages of non-contact fixing include the "avoidance of adhesive abrasion and the resultant increased

service lifetime of the device used, and an improved reliability of the device." Paragraph 0007. Behnke teaches a microwave fusing device that adequately fuses a particular toner onto a printed material. The fusing device irradiates the printed material comprising the particular toner with microwaves from at least one microwave emitter, which heats the printed material to melt the toner. The particular toner has "a sharp transition from its solid to its liquid state during heating." Paragraph 0008. Behnke further teaches that the particular toner has a ratio of the modulus elasticity G' as recited in instant claim 3 and the thermal properties recited in instant claims 4 and 5. Paragraph 0010. According to Behnke, the particular toner does "not become sticky or does not melt at development temperatures," but is very fluid, with low viscosity at a higher temperature, for example approximately 90°C. The toner "without outside pressure and in a non-contact manner settles on and in the printed material and adheres and upon a cooling down becomes hard again very quickly and is fixed . . . the fixed toner has a good surface gloss that is matched to the printed material." Paragraph 0009.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Paczkowski and Behnke, to use the toner having the thermal properties taught by

Behnke as the marking particles in the fusing method taught by Paczkowski. It would have also been obvious for that person to use the microwave fusing devices taught by Behnke as the non-contact prefuser device and as the permanent fusing device in the method taught by Paczkowski. That person would have had a reasonable expectation of successfully practicing a non-contact microwave fusing method that adequately fuses toner images applied to both sides of a substrate to provide fused toner images having good surface gloss as taught by Behnke and that has the advantages of non-contact fusing as taught by Behnke.

10. Claims 6 and 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Neither Paczkowski nor Behnke teaches or suggests the prefusing temperature or the final fixing temperature recited in instant claims 6 and 7, respectively.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Sandra Sewell, whose telephone number is (571) 272-1047.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Janis L. Dote/
Primary Examiner, Art Unit 1795

JLD
Aug. 29, 2009